

SEQUENCE LISTING



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 <223> Nucleotide sequence coding for histidine protein kinase

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22/31

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cag c aat gct atc aag ttt aca cat gaa gga aat gta gga atc aaa	2099
Asn Ala Ile Lys Phe Thr His Glu Gly Asn Val Gly Ile Lys	
495 500 505	
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Leu Gln Val Ile Ser Glu Pro Ser Phe Val Arg Asp Asn Ala Leu Asn	
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Ala Asp Thr Glu Glu His Glu Gln Asn Gly Leu Thr Glu Thr Ser Val	
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Trp Ile Cys Cys Asp Val Trp Asp Thr Gly Ile Gly Ile Pro	
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g gcaagcaagc aattctgaca aatgaacatg aaaagactaa aaaactccaa	2288
ctaacctata tattaacctg gttcatgttt tgggtgttctt gtgcag aa aac	2339
Glu Asn	
gct ctt cca tgt ttg ttc aag aag tac atg caa gca agc gct gat cat	2387
Ala Leu Pro Cys Leu Phe Lys Lys Tyr Met Gln Ala Ser Ala Asp His	
555 560 565	
gcc cga aaa tac ggt ggg act ggt ctc gga ctt gct att tgt aaa cag	2435
Ala Arg Lys Tyr Gly Gly Thr Gly Leu Gly Leu Ala Ile Cys Lys Gln	
570 575 580 585	
ctg gtaagctatt attaggattt tacaacacta cagaagaaac taatgaagct	2488
Leu	
cgttatccta atctttctct gtttgtttac ag gtt gag tta atg gga ggc caa	2541
Val Glu Leu Met Gly Gly Gln	
590	

ctc act gtg aca agc cgg gtg aac gaa ggt tca acg ttc aca ttt ata	2589
Leu Thr Val Thr Ser Arg Val Asn Glu Gly Ser Thr Phe Thr Phe Ile	
595 600 605	
tta ccc tac aaa gtt gga aga tca gat gat tat tca gat gat caa gat	2637
Leu Pro Tyr Lys Val Gly Arg Ser Asp Asp Tyr Ser Asp Asp Gln Asp	
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gag ttc tct gat atg gcg gat caa caa tct gaa cca gac gat aca gct	2685
Glu Phe Ser Asp Met Ala Asp Gln Gln Ser Glu Pro Asp Asp Thr Ala	
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Glu Gly Tyr Phe Gln Phe Lys Pro Leu Leu Gly Ser Ile Tyr Ser Asn	
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Gly Gly Pro Gly Ile Ser Asn Asp Phe Leu Pro His Lys Val Met Leu	
660 665 670	
act agt cct att aag ctc atc aat ggt ttt gtc gct gat ccc tct aac	2829
Thr Ser Pro Ile Lys Leu Ile Asn Gly Phe Val Ala Asp Pro Ser Asn	
675 680 685	
aac act gga cag agc gag atg cta cag ctt gaa aac ggt ggt tac atg	2877
Asn Thr Gly Gln Ser Glu Met Leu Gln Leu Glu Asn Gly Gly Tyr Met	
690 695 700 705	
gat gaa tct aaa ctc gaa acc agt tct ggt cat tgc cct gaa tca gct	2925
Asp Glu Ser Lys Leu Glu Thr Ser Ser Gly His Cys Pro Glu Ser Ala	
710 715 720	
cac caa tat gag aat gga aat ggt cga tgt ttc tct aag gaa tct gaa	2973
His Gln Tyr Glu Asn Gly Asn Gly Arg Cys Phe Ser Lys Glu Ser Glu	
725 730 735	
tct tgt agc agt tca caa gct agc tca gaa ggt gga acc tta gaa atg	3021
Ser Cys Ser Ser Ser Gln Ala Ser Ser Glu Gly Gly Thr Leu Glu Met	
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gag tca gag ctc aca gtt tca tct cat agg gaa gag gaa aaa gcc gag	3069
Glu Ser Glu Leu Thr Val Ser Ser His Arg Glu Glu Glu Lys Ala Glu	
755 760 765	
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Ile Glu Val Lys Glu Thr Ser Lys Pro Asn Ile Leu Leu Val Glu Asp	
770 775 780 785	

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Asn Lys Ile Asn Ile Met Val Ala Lys Ser Met Met Lys Gln Leu Gly	
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His Thr Met Asp Ile Ala Asn Asn Gly Val Glu Ala Ile Thr Ala Ile	
805 810 815	
aat agc tct agc tac gat ctg gta ctc atg gtatgtaaat tttcttagct	3263
Asn Ser Ser Ser Tyr Asp Leu Val Leu Met	
820 825	
ctaaggactt gtccttttca aattcactta tatttgaaaa aggcttataa ttcattattgg	3323
gttcacag gat gtg tgc atg ccg gtg ctc gat ggt tta aaa gct aca	3370
Asp Val Cys Met Pro Val Leu Asp Gly Leu Lys Ala Thr	
830 835 840	
aga ctg atc cgt tcg tat gaa gaa act ggg aac tgg aat gct gca ata	3418
Arg Leu Ile Arg Ser Tyr Glu Glu Thr Gly Asn Trp Asn Ala Ala Ile	
845 850 855	
gaa gcc gga gta gat ata tcg aca tcg gag aat gaa caa gtt tgt atg	3466
Glu Ala Gly Val Asp Ile Ser Thr Ser Glu Asn Glu Gln Val Cys Met	
860 865 870	
cgt ccc aca aac cgg ctg cct ata atc gcg gtcagtactt ctttttcgaa	3516
Arg Pro Thr Asn Arg Leu Pro Ile Ile Ala	
875 880	
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aatgtgcag atg acg gca aat act tta gca gag agt tca gaa gaa tgt	3624
Met Thr Ala Asn Thr Leu Ala Glu Ser Ser Glu Glu Cys	
885 890 895	
tat gca aat ggt atg gac tcg ttt att tcg aaa cct gta acg ttg caa	3672
Tyr Ala Asn Gly Met Asp Ser Phe Ile Ser Lys Pro Val Thr Leu Gln	
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aaa ctg aga gag tgt ttg caa cag tat ttg cac tga	3708
Lys Leu Arg Glu Cys Leu Gln Gln Tyr Leu His	
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<400> 6

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Val	Leu	Ser	Ser	Met	Trp	Pro	Glu	Asp	Val	Gly	Thr	Glu	Ala	Asp	Lys				
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Gln	Phe	Asn	Val	Glu	Lys	Pro	Ala	Gly	Asp	Leu	Asp	Thr	Leu	Lys	Glu				
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Val	Thr	Ile	Glu	Thr	Arg	Thr	Ile	Ala	Asp	Met	Thr	Arg	Leu	Pro	Asn				
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Leu	Leu	Asn	Ser	Thr	His	Gln	Gly	Ser	Ser	Gln	Leu	Thr	Asn	Leu	Val				
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Lys	Gln	Trp	Glu	Tyr	Met	Gln	Asp	Asn	Ala	Val	Arg	Leu	Leu	Lys	Glu				
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Glu	Leu	Lys	Asn	Leu	Asp	Arg	Gln	Arg	Glu	Glu	Ala	Glu	Ala	Lys	Glu				
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Leu	Lys	Ile	Ile	Glu	Glu	Tyr	Lys	Phe	Glu	Ser	Asn	Glu	Pro	Glu	Asn				
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Val	Pro	Val	Leu	Asp	Glu	Thr	Ser	Asp	Leu	Phe	Arg	Arg	Phe	Arg	Gln				
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Lys	Lys	Arg	Asp	Ala	Leu	Val	Asp	Ser	Lys	Lys	Ile	Glu	Ile	Tyr	Glu				
145					150					155					160				
Glu	Phe	Asp	Thr	Val	Ala	Tyr	Trp	Lys	Gln	Lys	Ala	Leu	Ser	Leu	Glu				
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Lys	Met	Leu	Glu	Ala	Ser	Thr	Glu	Arg	Glu	Arg	Arg	Leu	Met	Glu	Lys				
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Leu	Ser	Glu	Ser	Leu	Lys	Thr	Met	Glu	Ser	Gln	Ser	Ala	Pro	Val	Gln				
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Glu	Leu	Thr	Gln	Asn	Leu	Lys	Arg	Ala	Glu	Gly	Phe	Leu	His	Phe	Ile				
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Leu	Gln	Asn	Ala	Pro	Ile	Val	Met	Gly	His	Gln	Asp	Lys	Asp	Leu	Arg				
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Tyr	Leu	Phe	Ile	Tyr	Asn	Lys	Tyr	Pro	Ser	Leu	Arg	Glu	Gln	Asp	Ile				
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Leu	Gly	Lys	Thr	Asp	Val	Glu	Ile	Phe	His	Gly	Gly	Gly	Val	Lys	Glu				
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Ser	Glu	Asp	Phe	Lys	Arg	Glu	Val	Leu	Glu	Lys	Gly	Lys	Ala	Ser	Lys				
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Arg Glu Ile Thr Phe Thr Thr Asp Leu Phe Gly Ser Lys Thr Phe Leu			
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Ile Tyr Val Glu Pro Val Tyr Asn Lys Ala Gly Glu Lys Ile Gly Ile			
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Asn Tyr Met Gly Met Glu Val Thr Asp Gln Val Val Lys Arg Glu Lys			
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Met Ala Lys Leu Arg Glu Asp Asn Ala Val Arg Lys Ala Met Glu Ser			
340	345	350	
Glu Leu Asn Lys Thr Ile His Ile Thr Glu Glu Thr Met Arg Ala Lys			
355	360	365	
Gln Met Leu Ala Thr Met Ser His Glu Ile Arg Ser Pro Leu Ser Gly			
370	375	380	
Val Val Gly Met Ala Glu Ile Leu Ser Thr Thr Lys Leu Asp Lys Glu			
385	390	395	400
Gln Arg Gln Leu Leu Asn Val Met Ile Ser Ser Gly Asp Leu Val Leu			
405	410	415	
Gln Leu Ile Asn Asp Ile Leu Asp Leu Ser Lys Val Glu Ser Gly Val			
420	425	430	
Met Arg Leu Glu Ala Thr Lys Phe Arg Pro Arg Glu Val Val Lys His			
435	440	445	
Val Leu Gln Thr Ala Ala Ala Ser Leu Lys Lys Ser Leu Thr Leu Glu			
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Gly Asn Ile Ala Asp Asp Val Pro Ile Glu Val Val Gly Asp Val Leu			
465	470	475	480
Arg Ile Arg Gln Ile Leu Thr Asn Leu Ile Ser Asn Ala Ile Lys Phe			
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Thr His Glu Gly Asn Val Gly Ile Lys Leu Gln Val Ile Ser Glu Pro			
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Ser Phe Val Arg Asp Asn Ala Leu Asn Ala Asp Thr Glu Glu His Glu			
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Gln Asn Gly Leu Thr Glu Thr Ser Val Trp Ile Cys Cys Asp Val Trp			
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Asp Thr Gly Ile Gly Ile Pro Glu Asn Ala Leu Pro Cys Leu Phe Lys			
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Lys Tyr Met Gln Ala Ser Ala Asp His Ala Arg Lys Tyr Gly Gly Thr			
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Gly Leu Gly Leu Ala Ile Cys Lys Gln Leu Val Glu Leu Met Gly Gly			
580	585	590	

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Ile	Leu	Pro	Tyr	Lys	Val	Gly	Arg	Ser	Asp	Asp	Tyr	Ser	Asp	Asp	Gln				
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Asp	Glu	Phe	Ser	Asp	Met	Ala	Asp	Gln	Gln	Ser	Glu	Pro	Asp	Asp	Thr				
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Ala	Glu	Gly	Tyr	Phe	Gln	Phe	Lys	Pro	Leu	Leu	Gly	Ser	Ile	Tyr	Ser				
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Asn	Gly	Gly	Pro	Gly	Ile	Ser	Asn	Asp	Phe	Leu	Pro	His	Lys	Val	Met				
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Leu	Thr	Ser	Pro	Ile	Lys	Leu	Ile	Asn	Gly	Phe	Val	Ala	Asp	Pro	Ser				
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Ala	His	Gln	Tyr	Glu	Asn	Gly	Asn	Gly	Arg	Cys	Phe	Ser	Lys	Glu	Ser				
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Glu	Ser	Cys	Ser	Ser	Ser	Gln	Ala	Ser	Ser	Glu	Gly	Gly	Thr	Leu	Glu				
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Met	Glu	Ser	Glu	Leu	Thr	Val	Ser	Ser	His	Arg	Glu	Glu	Glu	Lys	Ala				
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Glu	Ile	Glu	Val	Lys	Glu	Thr	Ser	Lys	Pro	Asn	Ile	Leu	Leu	Val	Glu				
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Asp	Asn	Lys	Ile	Asn	Ile	Met	Val	Ala	Lys	Ser	Met	Met	Lys	Gln	Leu				
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Gly	His	Thr	Met	Asp	Ile	Ala	Asn	Asn	Gly	Val	Glu	Ala	Ile	Thr	Ala				
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Ile	Asn	Ser	Ser	Ser	Tyr	Asp	Leu	Val	Leu	Met	Asp	Val	Cys	Met	Pro				
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Val	Leu	Asp	Gly	Leu	Lys	Ala	Thr	Arg	Leu	Ile	Arg	Ser	Tyr	Glu	Glu				
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Thr	Gly	Asn	Trp	Asn	Ala	Ala	Ile	Glu	Ala	Gly	Val	Asp	Ile	Ser	Thr				
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Ser	Glu	Asn	Glu	Gln	Val	Cys	Met	Arg	Pro	Thr	Asn	Arg	Leu	Pro	Ile				
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Ile	Ala	Met	Thr	Ala	Asn	Thr	Leu	Ala	Glu	Ser	Ser	Glu	Glu	Cys	Tyr				
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Ala Asn Gly Met Asp Ser Phe Ile Ser Lys Pro Val Thr Leu Gln Lys

900

905

910

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920

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